

Operational Evolution Partnership

*An Introduction to
FAA's Integration &
Implementation Plan
for NextGen*

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NASA All-Hands Meeting

July 27, 2007



Federal Aviation
Administration



OEP is FAA's path to NextGen

“This Operational Evolution Partnership will be the mechanism by which we inform our owners, customers, and aviation community of our plans and progress towards the NextGen vision...”

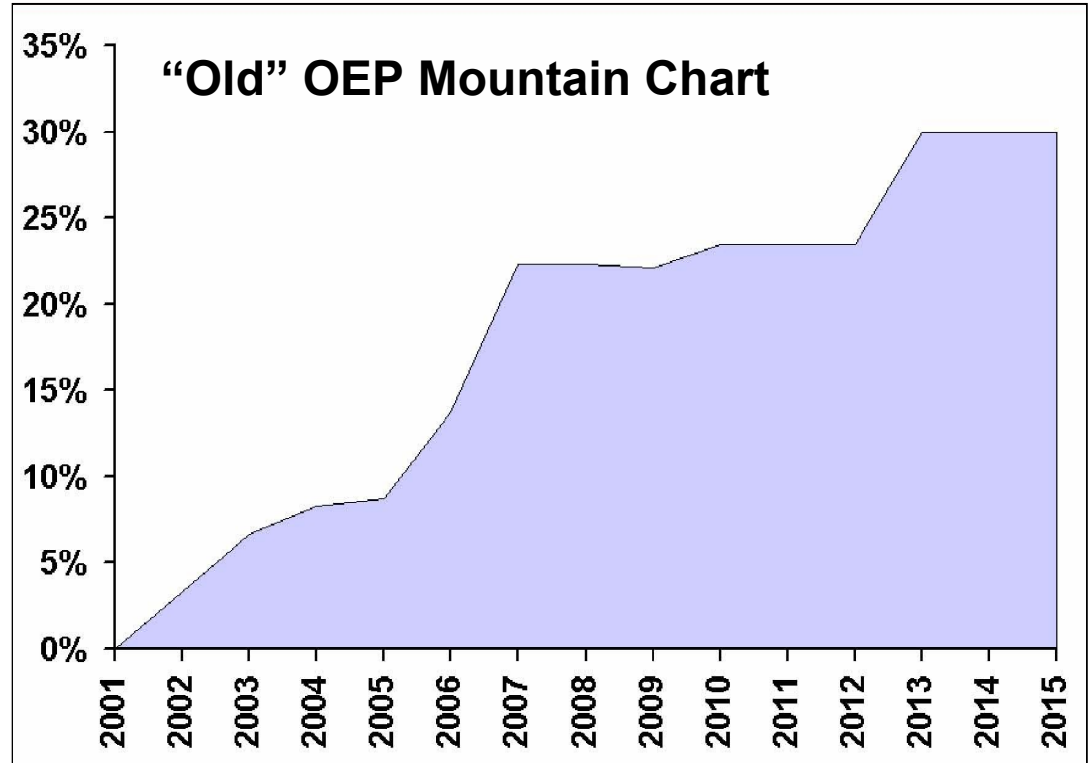


-- Marion C. Blakey, FAA Administrator, before the Senate aviation subcommittee, May 2006

Why OEP?

The Right People,
Right Process

- **Cross-Agency Participation**
- **Cross-Community Support**
- **Proven Results**



Goal Achieved by 2013:
30% increase in effective capacity

What You'll Learn Today

- **What OEP is**
- **Who has authority over OEP**
- **How OEP works**
- **Where OEP must go from here**



What is OEP Version 1?

- **Defines framework for FAA's NextGen implementation plan**
 - Scope is broader than capacity
 - Reflects NextGen vision
- **Demonstrates how FAA's integration & implementation plan will be executed**
 - To ensure development processes are not just parallel, but complementary
- **Aligns research & development with NextGen objectives**
- **Provides high-level “big picture” content**
- **Initiates industry collaboration process**



OEP online: www.faa.gov/programs/oep

Operational Evolution Partnership



Plus....FAA Cross-Agency Integration

Who has authority over OEP?

OEP Associates Team



**Advised by
the OEP
Review
Board**



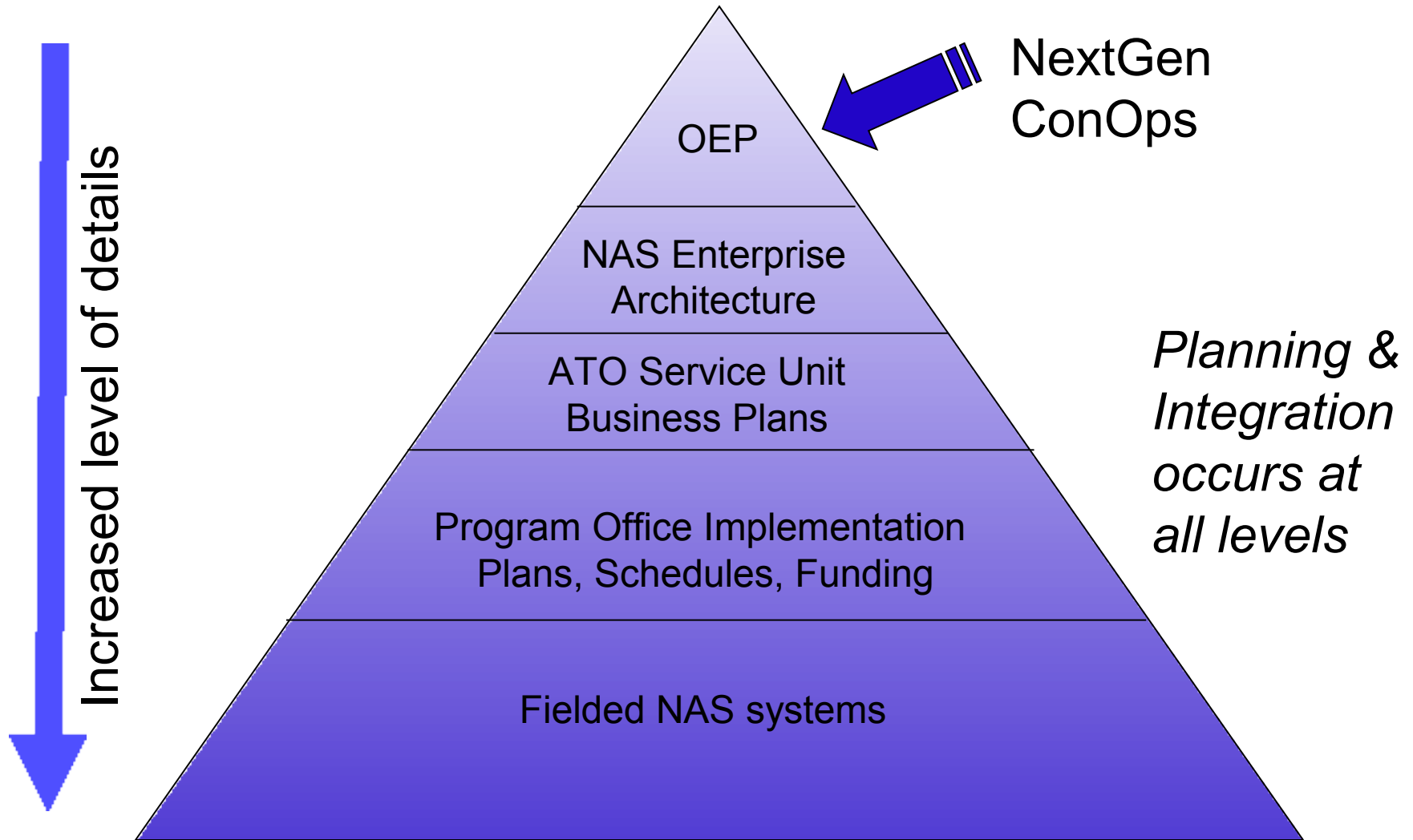
**Guided by
Ops
Planning VP
Vicki Cox**



How is FAA Using the OEP?

- **FAA-wide strategic planning reflects NextGen vision**
 - Guiding budget formulation
 - Prioritizing resources
 - Focusing research & development on NextGen
 - Integrating program planning to achieve capabilities

OEP In Context



OEP Focus is on the Mid-term (2012-2018)

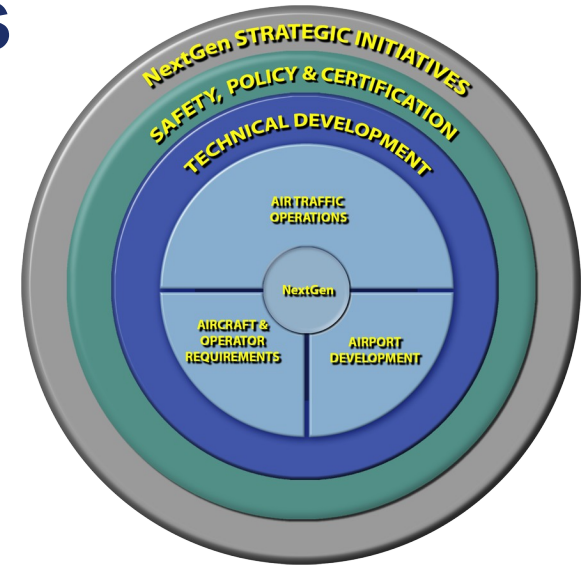
- Without improvements to the Air Traffic System, delays are projected to increase 62% by 2014
- 27% increases in domestic traffic projected for 2016
- Studies have shown that controllers cannot handle 25% increases in traffic in the busiest sectors using tools available today

Bottom line:

Failure to accommodate demand will have severe economic impact inside and outside the aviation industry

Defining the OEP Domains

- **Airport Development**
 - New concrete
- **Air Traffic Operations**
 - Transformational capabilities
- **Aircraft & Operator Requirements**
 - Avionics

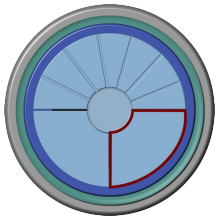


Depiction

Core = FAA Commitments

Transition Rings = Related activities that are less mature

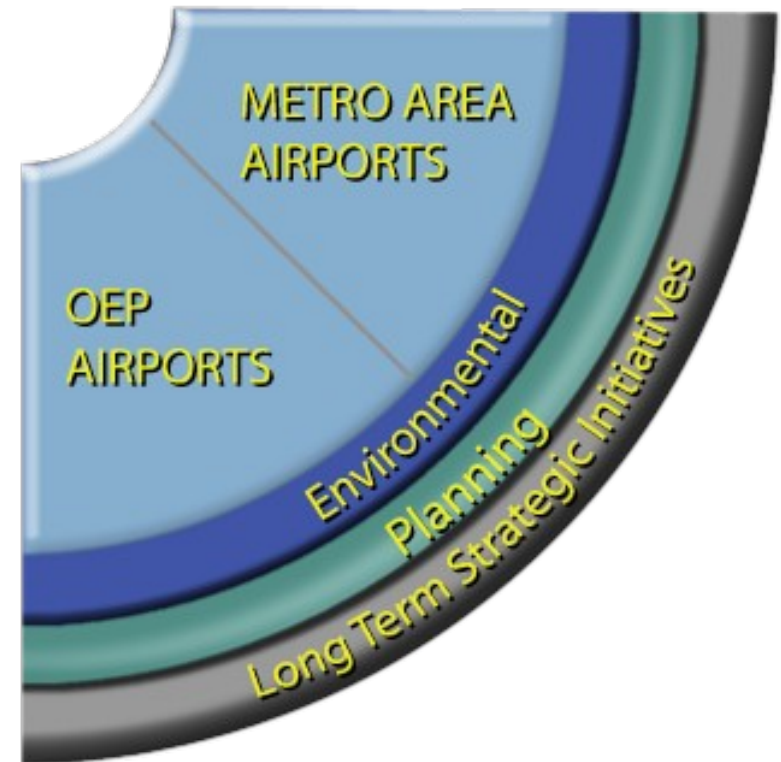
Outer Transformational Ring = Proofs of concepts for NextGen

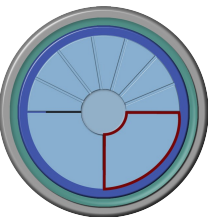


Airport Development Domain

Focus: Airport infrastructure for greater capacity and delay reduction

- **OEP 35 Airports, with a view of longer range planning**
- **Metropolitan Areas**
 - 15 metropolitan areas
 - 80+ non-OEP airports



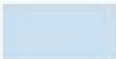




Airport Development Domain

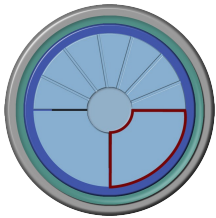
OEP 35 Airports



Regions

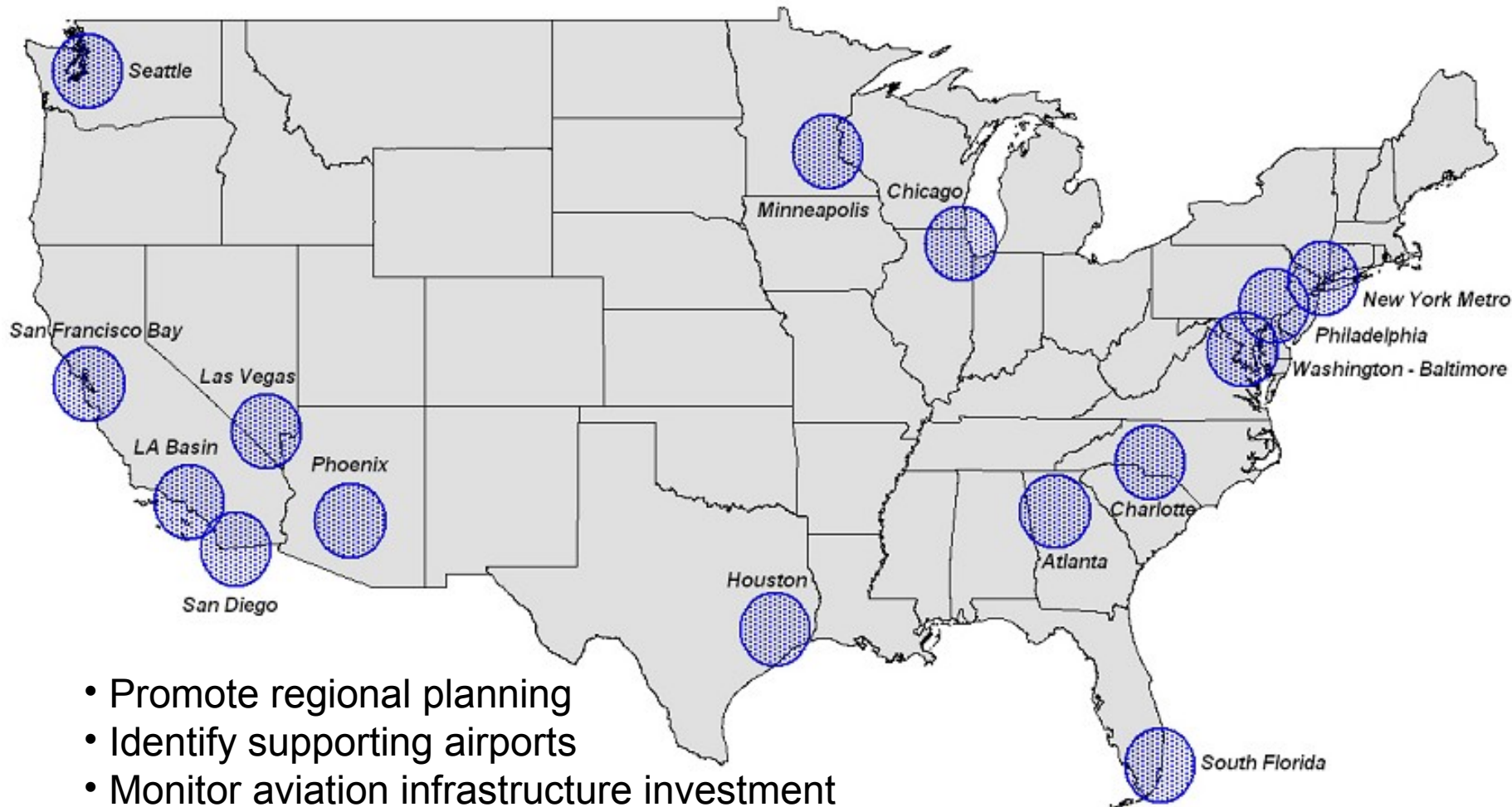
| | | | | |
|---|---|---|--|---|
|  AAL |  AWP |  ACE |  ANE |  ASO |
|  ANM |  ASW |  AGL |  AEA | |

• Monitors planning for and construction of airport infrastructure at the nation's busiest

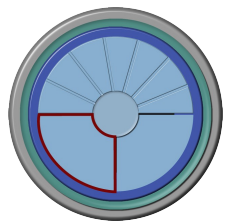


Airport Development Domain

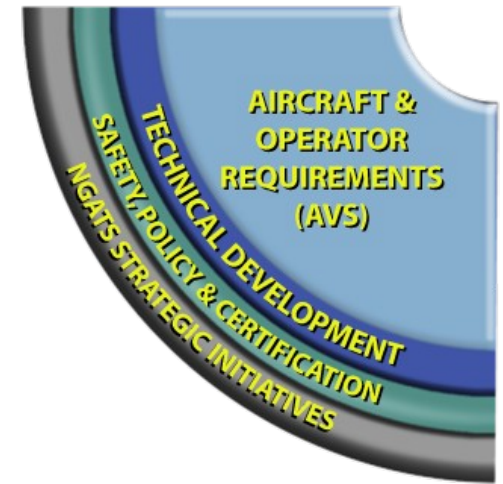
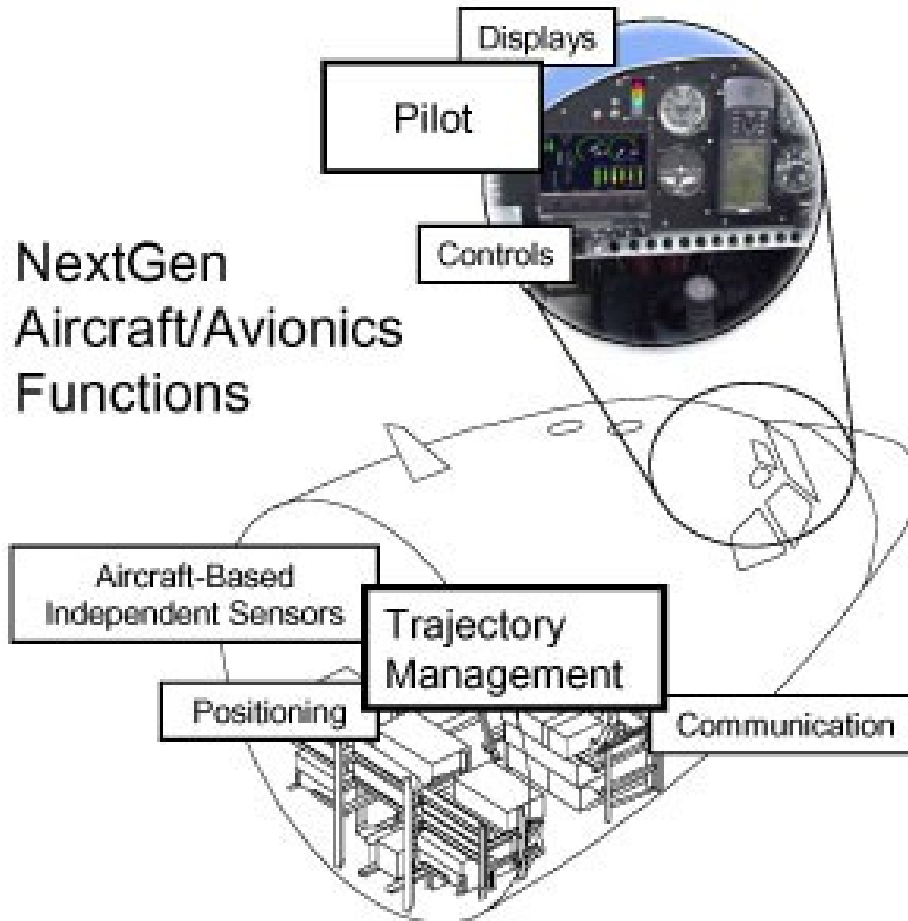
OEP Metro Areas



- Promote regional planning
- Identify supporting airports
- Monitor aviation infrastructure investment



Aircraft & Operator Requirements

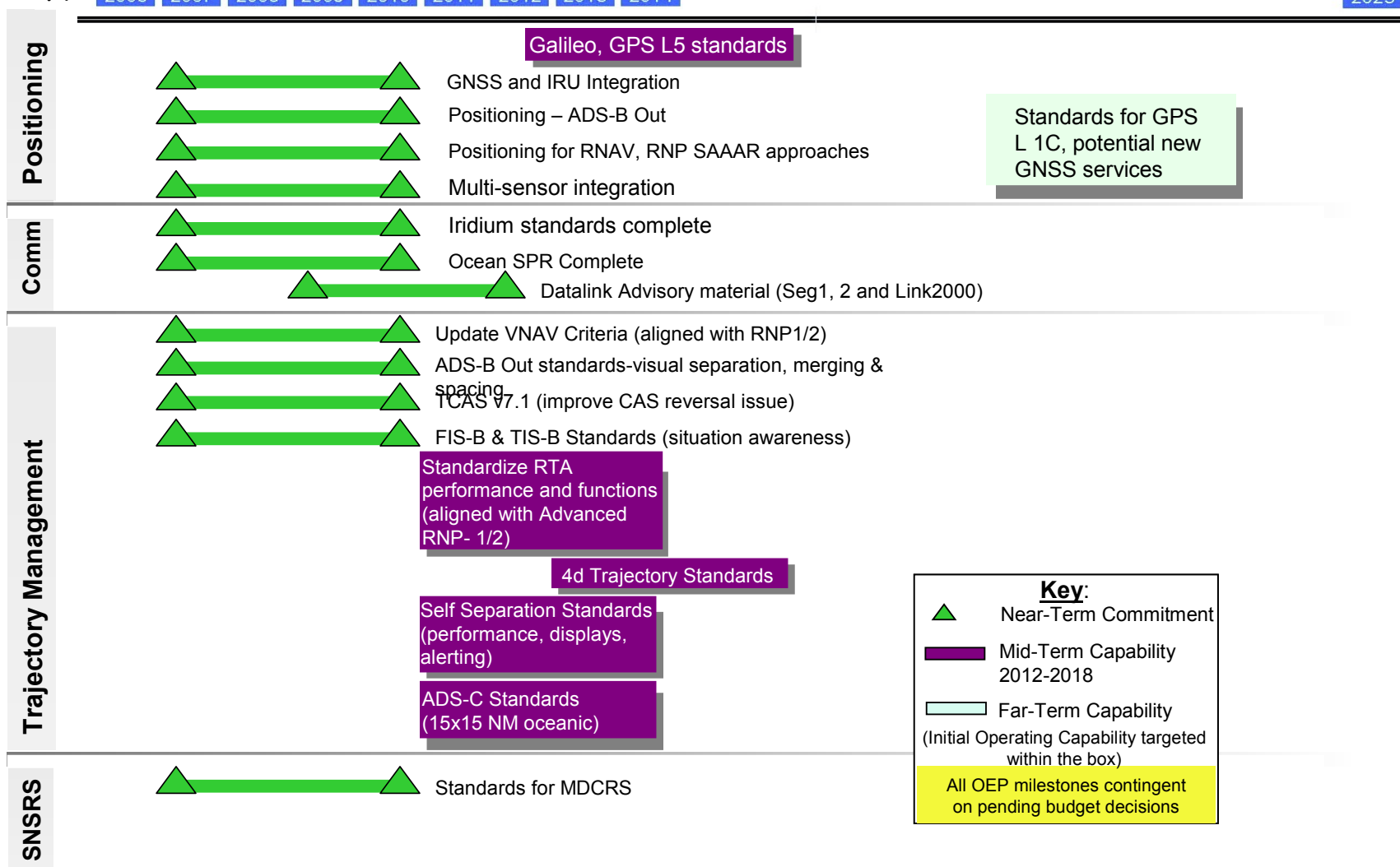


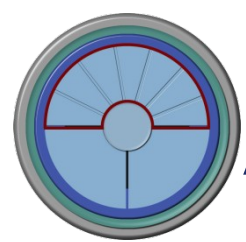
Aircraft & Operator Requirements

FY

2006 2007 2008 2009 2010 2011 2012 2013 2014

2025





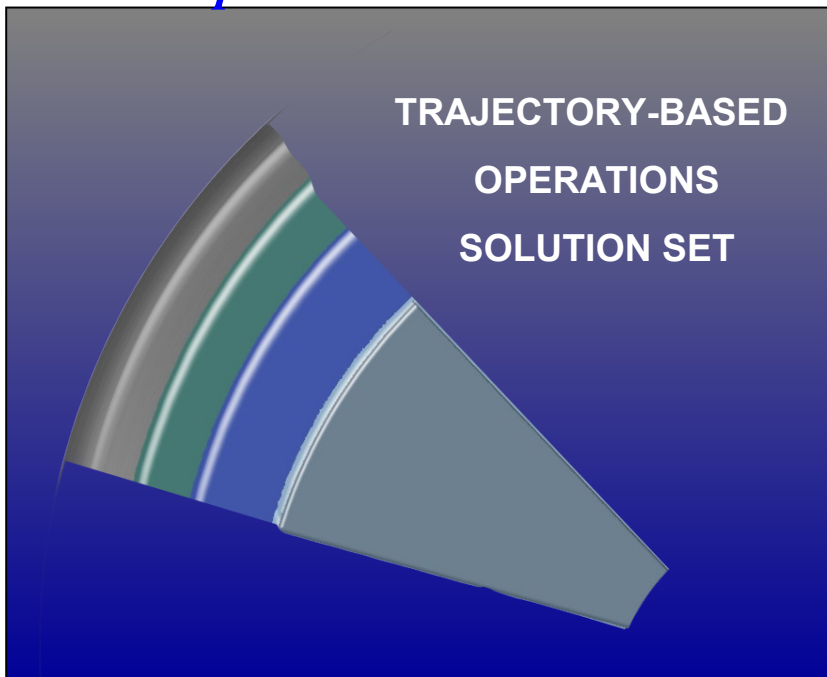
Air Traffic Operations Domain

**Seven (7) “Solution Sets” targeted to address
Capacity, Efficiency, Safety, Security
of air transportation operations**



OEP Solution Set is a portfolio of capabilities

For example:



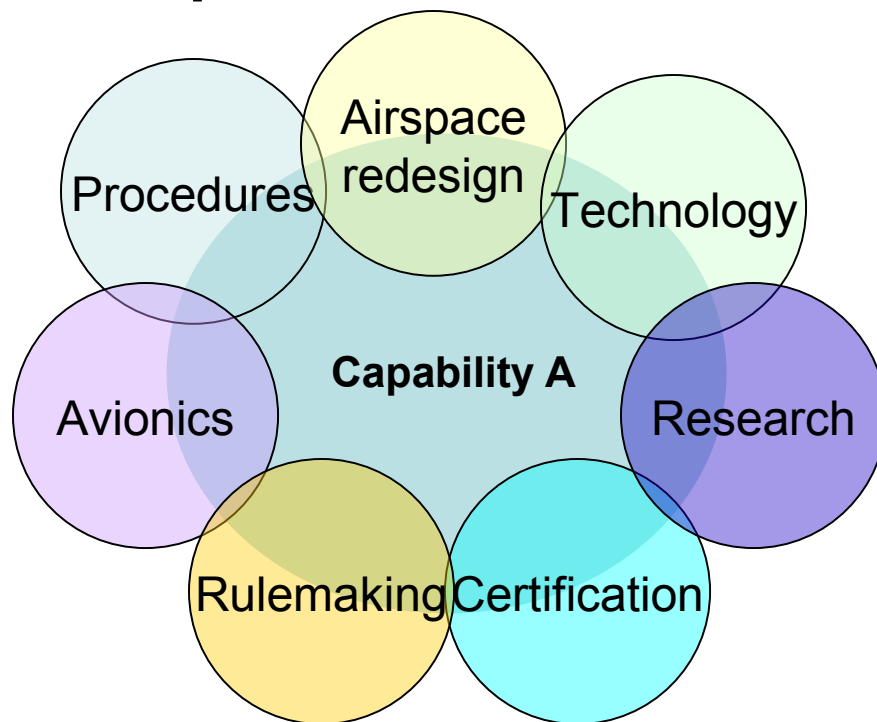
- Automated conflict detection
- Clearances by data vs. by voice
- Sectors managed automatically
- Variable separation based on wake
- Real-time assessment of airspace flow



Capabilities Integrate Activities

Implementation Plans

Integrates activities from multiple programs.



Identifies which activities are needed for a given capability.

OEP will provide cross-agency implementation plans for each capability.

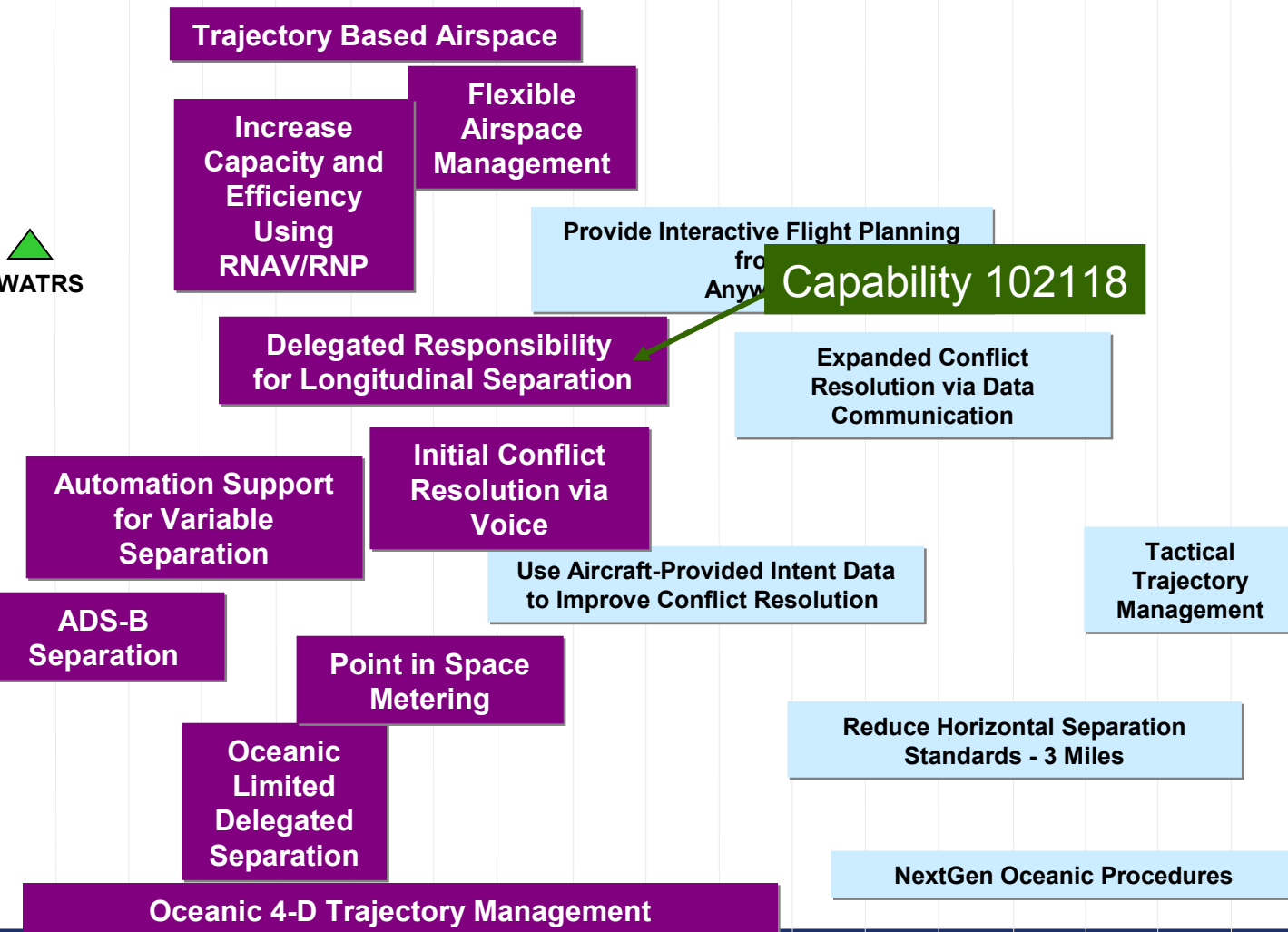
Initiate Trajectory Based Operations

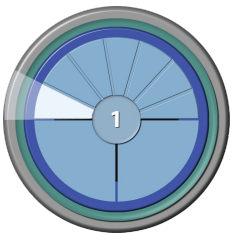
FY 2006 2007 2008 2009 2010 2011 2012 2013 2014 2025

Operational Use
of 30/30 Separation
In Oakland airspace



50 nmi Lateral
Separation in WATRS





Example of Capability 102118 linkage to NAS Enterprise Architecture

CATS Service Information - Windows Internet Explorer

http://www.nas-architecture.faa.gov/nas/view_service/oi_summary.cfm?SVHID=102118

File Edit View Favorites Tools Help

CATS Service Information

The Federal Aviation Administration
National Airspace System Architecture 6

FAA Home FAA Site Map DOT Ask FAA FAA Search

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NAS Menu

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Financial
Location
Mechanisms
Services

Service View - Summary Operational Improvement Report

Operational Improvement Summary for : Shared Responsibility For Horizontal Separation

Operational Improvement: Shared Responsibility For Horizontal Separation

Improved avionics and new procedures allow air traffic controllers to delegate resolution responsibility to pilots when it is operationally beneficial to do so. Enhancements to automatic dependent surveillance and the traffic information system provide common situational awareness to the flight deck display. Pilots implement the airborne separation assurance service by using visual flight rule-like procedures between like-equipped aircraft to realize an operational advantage.

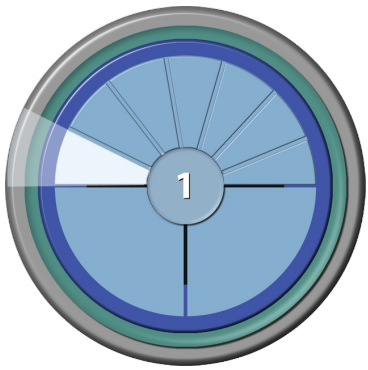
Benefits

Delegating resolution authority for horizontal separation to pilots allows controllers to provide services to additional aircraft and increases the throughput for their sector. There is reduced controller workload through one-step clearances for conflict resolution or merging into flows. There is increased flight efficiency by ensuring minimal deviations to achieve/maintain separation.

Capability 102118

http://www.nas-architecture.faa.gov/nas/view_service/oi_extended.cfm?SVHID=102118



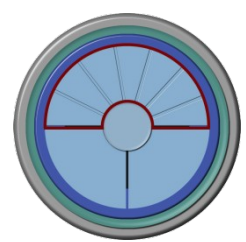


Example:

Initiate Trajectory Based Operations

What is TBO?

- Aircraft fly negotiated trajectories
- ATC moves to management by trajectory
- Aircraft are equipped for full participation in trajectory based operations
- Changes to roles, responsibilities, and procedures that support the move to trajectory based operations
- Tactical Separation Management:
 - Radar controller productivity optimized by enhanced automated conflict detection, resolution, and conformance monitoring
- Transition Clearances from voice to data
- Automating sector task management
- Variable separation based on wake and ops performance
- Real time assessment of tactical airspace changes and flow



How to Read OEP Version 1

www.faa.gov/programs/oep

Solution Set Smart Sheet

- Describes the solution set and its benefits
- Describes the capabilities that build the solution set
- Denotes key transformational and enabling programs

Reference Sheet

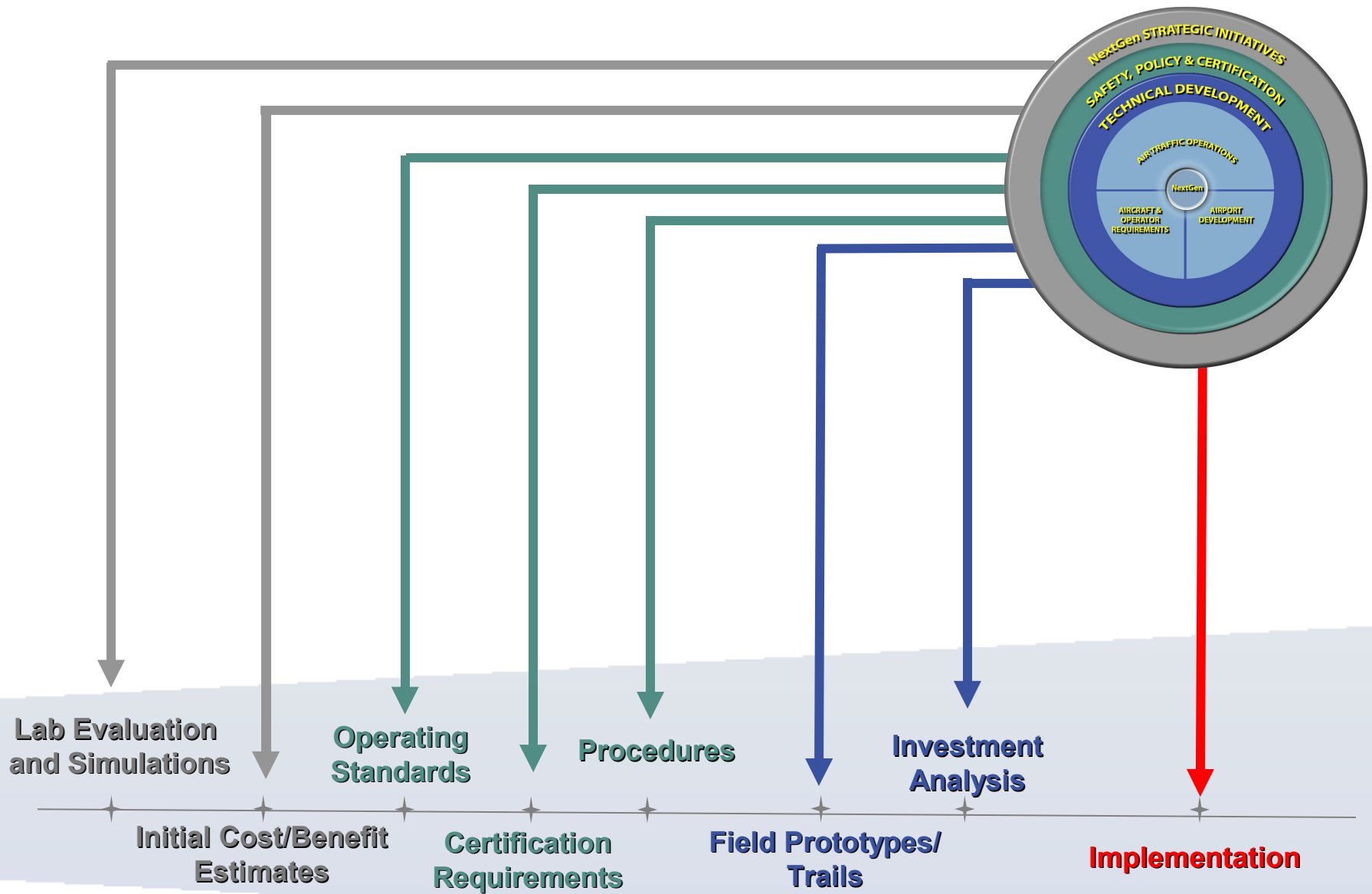
- Briefly describes major NextGen programs
 - ADS-B
 - ADAPT

Strategic Timelines

- For each Solution Set

What Comes Next?

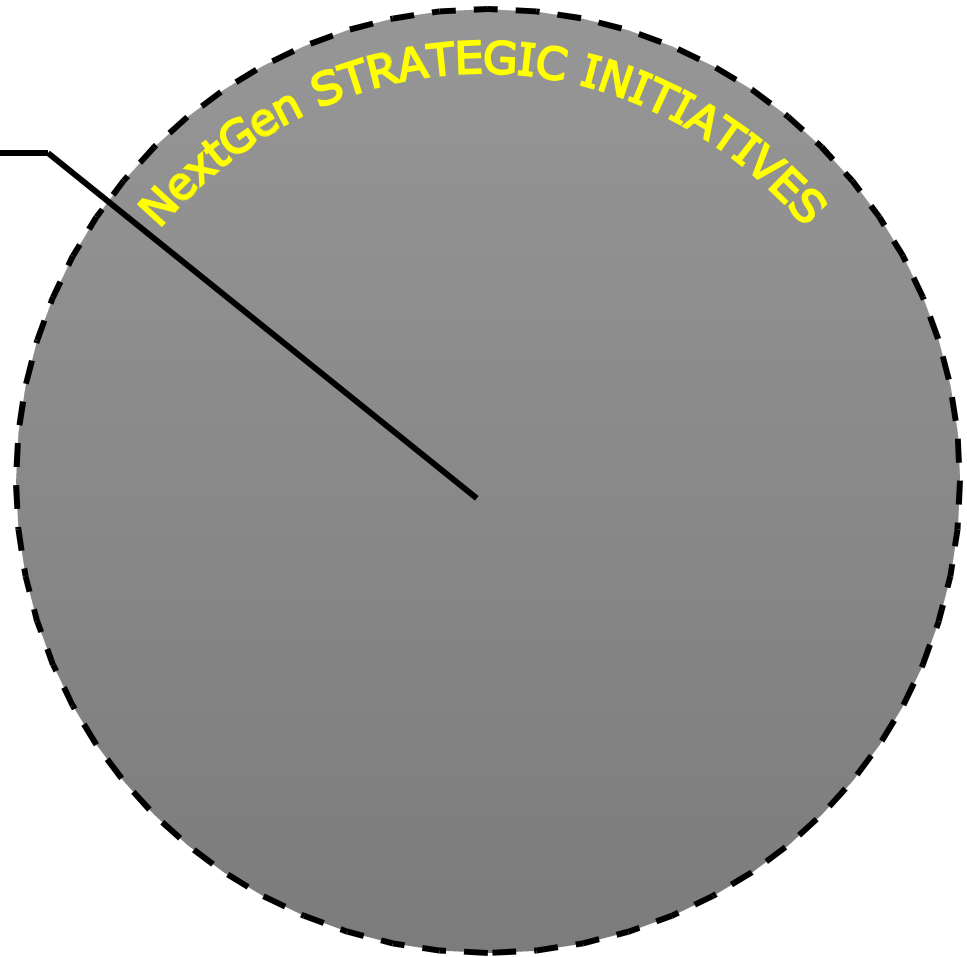




The Path to NextGen

NextGen Strategic Initiatives

Advanced NAS Concepts
System Performance
Requirements
Concept Demonstrations
Initial Benefits and
Cost Estimates
Research



The Path to NextGen

Safety, Policy & Certification

Safety Analysis

Operating Policy

Performance
Standards

Certification
Requirements

Operating
Requirements



The Path to NextGen

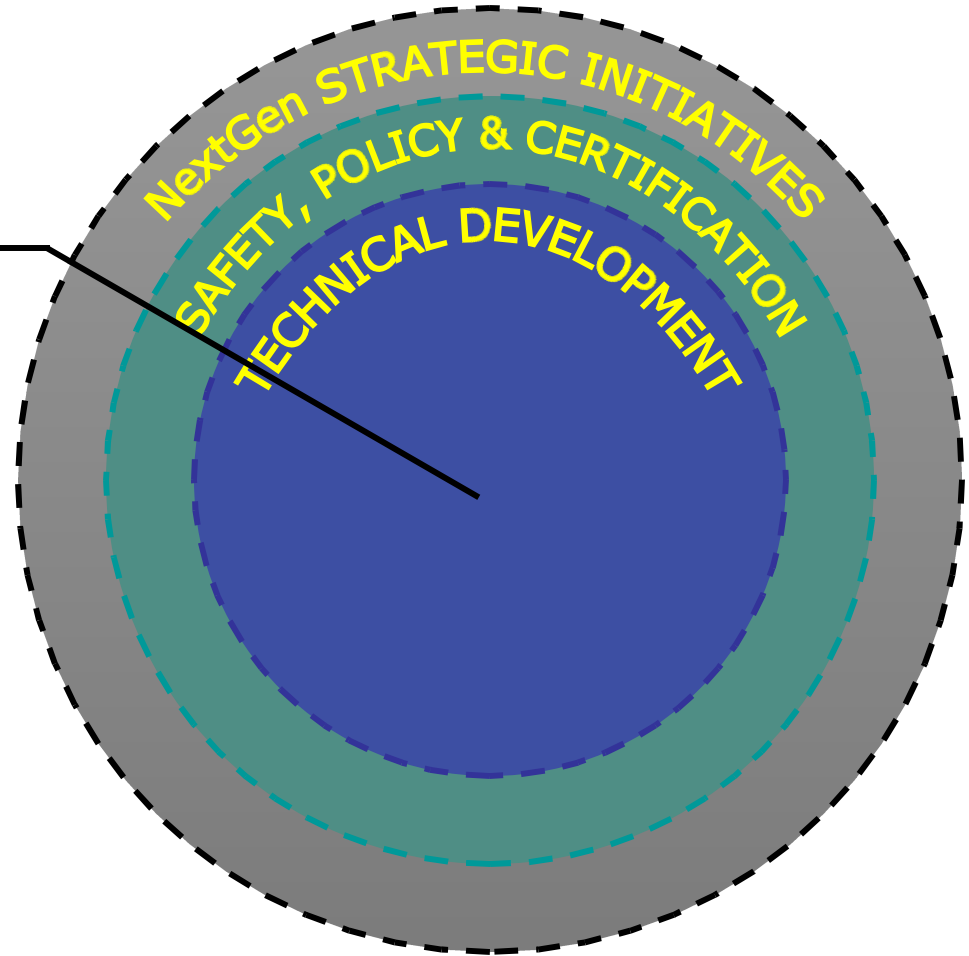
Technical Development

Alternatives Analysis

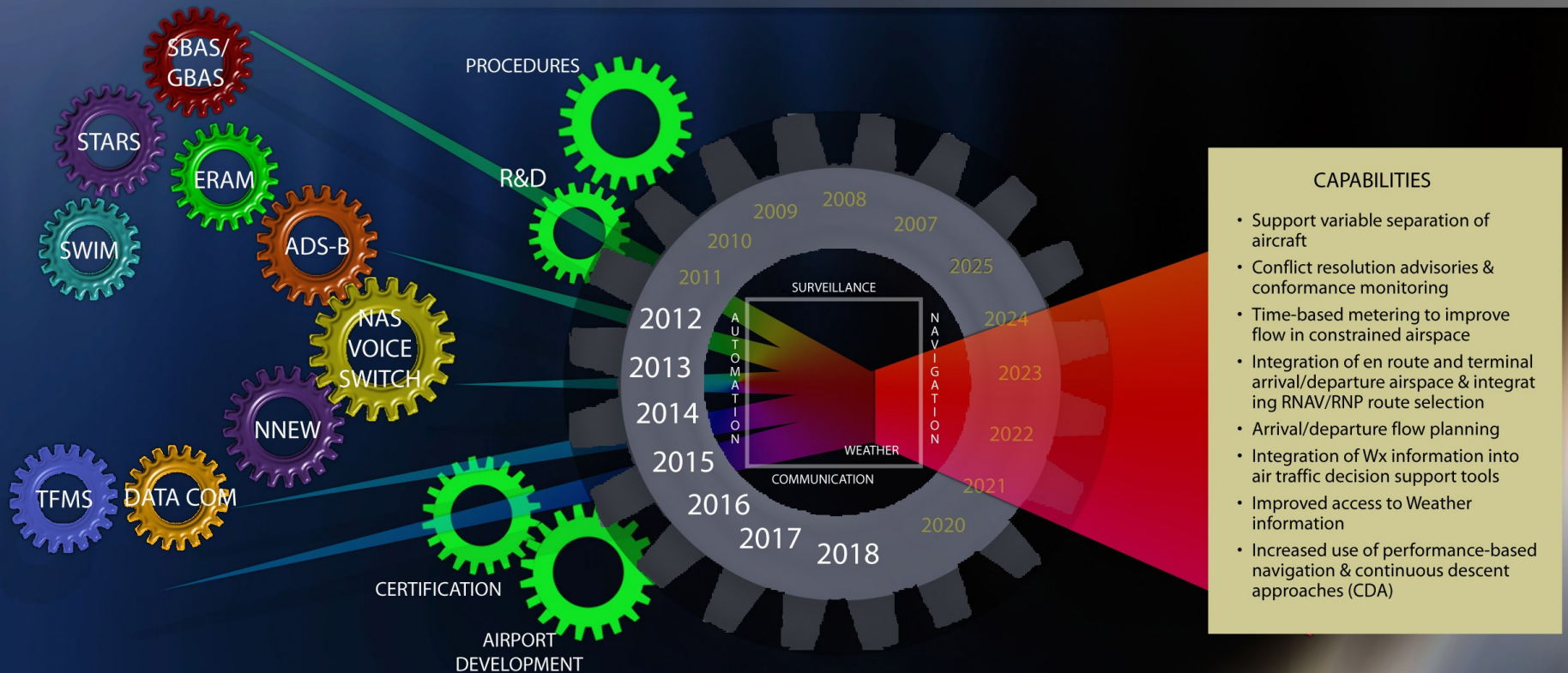
Field Prototypes

Operational Field
Trials

Investment Analysis



OEP MID-TERM CAPABILITY ROADMAP



■ FAA is developing several key programs that provide the dynamic infrastructure that will underpin the NextGen system.

■ When combined with today's research and development projects and new air traffic control procedures, these programs will allow FAA to implement NextGen's initial and end state capabilities.

■ These capabilities will be described in the OEP Air Traffic Operations domain, which is divided into seven solution sets. These capabilities will be further broken down into a series of activities, the progress of which can be tracked to ensure the FAA remains on target for implementation.

■ Initial internationally harmonized avionics will be used in the mid-term where they are available. New airport development will also increase capacity significantly in this timeframe.

